Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

neris, but a compound altogether different in its nature and properties; 3rd, to prove that the supposed identity of sorbic acid with Scheele's acid of apples was assumed on insufficient grounds; and 4th, now, for the first time, to supply the hitherto deficient evidence that the acid of apples is the same as that of sorbus berries, neither containing any other acid than the sorbic."

Rev. Charles Graves communicated some notes made by himself and Mr. Charles M'Donnell respecting the existence of various manuscripts in Ireland in the early part of the seventeenth century.

Rev. Dr. Todd presented rubbings from the monumental stones in the churchyard of the abbey of Dungiven, Co. Derry.

APRIL 22ND, 1850.

The REV. HUMPHREY LLOYD, D. D., PRESIDENT, in the Chair.

The Secretary read the following second Report relative to the establishment of a system of meteorological and tidal observations in Ireland:

"In presenting to the Academy their Second Report relative to the establishment of a system of Meteorological and Tidal Observations in Ireland, your Council desire to state that they have given their earnest and attentive consideration to the details of the proposed measure, and especially to the plan of observation required. Before entering upon the latter, it will be necessary to advert briefly to the nature of the questions whose solution is sought. In Meteorology the following are the principal:

"1. The distribution of temperature, humidity, and rain, as affected by geographical position and by local circumstances; and the other phenomena of climate.

"2. The effect of season (combined with the influences already referred to) upon the distribution of temperature, and the varying position of the isothermal lines *from month to month.*

"3. The *non-periodic* variations of pressure, temperature, and humidity, and their connexion with the course and direction of the aerial currents.

"4. The phenomena and laws of storms, whether revolving or otherwise.

"5. The periodical winds prevailing during certain seasons, and their modifications from geographical position or local causes.

"6. The course and rate of progress of atmospheric waves.

"The chief conditions for the solution of these questions are, that the observations should be taken *at equal intervals* of time, at a sufficient number of well-selected stations, and that the times should be chosen in such a manner as to furnish the *daily means* of the elements sought. But it has been shown that *any two* observations in the day, taken at equal intervals, are sufficient to eliminate the diurnal variation, and to give the daily means of all the meteorological elements, excepting the atmospheric pressure; and, as the diurnal variation of the pressure is very small in these latitudes, —much smaller than the irregular fluctuations of the same element, the objects for which the present system is instituted will be best attained, by taking *two* observations in the day, at *homonymous hours.*

"The best pair of homonymous hours, all circumstances considered, is 9 A. M. and 9 P. M., mean time of the place of observation; and these are accordingly proposed as the fixed hours of observation for those who co-operate in the present system. In order to elucidate more fully some of the questions above noticed, and in particular that which relates to the movements of atmospheric waves, it is proposed also, that *hourly observations* should be made at all the stations for twenty-four hours, four times in the year, namely, at the equinoxes and solstices. *Occasional* hourly observations will likewise be made under special circumstances.

"As respects the second head of inquiry,—namely, the phenomena and laws of the Tides on the coasts of Ireland,—the more important questions that present themselves, as demanding further investigation, are the following:

"1. The law of the *diurnal* tide, referred to the actions of the two luminaries, and the separation of the effects due to each.

"2. The apparent anomalies in the progress of the diurnal tide-wave, and the variations of its range.

"3. The phenomena connected with the progress of the *semi-diurnal* tide-wave in the Irish Channel, and its supposed inversion.

"4. The proof from observation of the existence of a *tertio-diurnal* tide, as indicated by theory.

"5. The apparent difference in the heights of mean water, on the north and south coasts of the Island, as well as in large and small tides.

"Owing to the complexity in the law of the rise and fall of the tide, and its variations at different places, the system of observation required in the solution of these questions is necessarily an elaborate one. The whole course of the tide must be followed, by observations at short intervals; but, as so great an amount of labour could not be expected continuously, it is proposed that the *four principal tides* in each lunation only (the two *spring* and two *neap* tides) shall be observed in this manner,—the observations being continued at intervals of a quarter of an hour for twelve hours. In addition to these *weekly* observations, *daily* observations of the greatest and least heights of the tide (without reference to *time*) will be obtained by the help of a self-registering apparatus.

"Your Council have prepared a body of instructions, based upon the foregoing principles, in which the rules as to the times, and all the other details of the method of observation, are fully explained.

"The instruments required at each station for these investigations are, a barometer, a pair of ordinary thermometers (dry and wet bulb), a pair of self-registering thermometers, a wind vane, Lind's anemometer, and a rain-gauge. In addition to these, a self-registering tide-gauge will be required at the tidal stations, and a thermometer adapted to the observation of the temperature of the sea. The details connected with the form and construction of these instruments have been fully considered by the Committee of Science;

and it is proposed that they shall be as simple and inexpensive as is consistent with accuracy. An estimate for the meteorological instruments, furnished by Mr. Yeates, has been submitted to your Council and approved of, from which it appears that the cost of a complete set will not exceed £10.

"Your Council have the gratification of stating, that the application to the Lords of the Treasury, requesting that they would direct the required observations to be made by the officers of the Coast-guard, at certain stations round the coasts of Ireland, has been promptly acceded to; and that a communication has been opened with the Comptroller-General of the Coast-guard on the subject. Orders have, in consequence, been issued by the Comptroller-General to the officers in command of the several districts, directing that the views of the Council be fully carried out.

"The Coast-guard stations, selected by the Committee of Science, and approved of by the Council, are the following: Kingstown, Courtown, Dunmore, Castletownsend, Valentia, Kilrush, Old Head, Mullaghmore, Buncrana, Ballycastle, Donaghadee, and Ardglass. It may be necessary to observe, that the offer of the Academy to supply instruments has reference to these stations only. All other parties co-operating will be expected to procure their own instruments, if they do not already possess them; but the Council will gladly give any assistance which may be required, either in directing the choice of the instruments, or in verifying and comparing them when obtained.

"Promises of co-operation have been received from the Board of Trinity College, from the Warden and Fellows of the College of St. Columba, and from the Board of Works; as also from the Earl of Rosse, Dr. Robinson, and Mr. Cooper. From the other parties applied to no official replies have been as yet received.

"Your Council have reason to believe that there are, moreover, many private individuals in Ireland who are already engaged in making Meteorological Observations, and others who would engage in them, provided that a definite object of inquiry were set before them, and that they had the stimulus which association imparts to those who are united in a common pursuit. They have, accordingly, addressed a circular letter to such persons, inviting their co-operation; and to this letter has been appended a statement, setting forth the objects of the proposed organization.

"Your Council have only to add their expectation, that the preliminary arrangements will be completed in two months from the present time, and that the regular series of observations may be commenced on the 1st of July."

The President communicated some notes on the storm which visited Dublin on the 18th April last.

"Having watched attentively the progress of the late storm from a favourable position, and collected some facts relative to it from the records of the Observatory, and from other sources, I avail myself of the present opportunity to lay them before the Academy. The phenomena were of a nature so unusual (I may say unexampled) in these climates, that it is desirable that some notice of them, however imperfect, should be placed on record; and the present summary of facts is offered, chiefly in the hope that it may serve as a nucleus to a more complete one. I shall limit myself, mainly, to those which have an immediate scientific bearing.

"The morning of the 18th was fine in Dublin, with bright sunshine, light cirrous clouds being scattered loosely over the sky; at ten o'clock these became diffused, and the sky was evenly, but lightly overcast.

"From the tracings of the self-registering anemometer, erected in Trinity College, it appears that on the 17th, and during the morning of the 18th, the wind blew gently from the south-west. Towards noon, on the latter day, it gradually veered to the south, and continued at that point until the arrival of the storm. This veering of the wind, however, appears to have been confined to the lower current; the direction of the upper current, as estimated by the motion of the clouds, appeared to be nearly south-west.

"The first indications of the approach of the storm were observed soon after three o'clock. Massive *cumuli* were seen